

Soil Mechanics Information

SMIAC

Analysis Center

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Earthquakes and Earth Dams

Due to ongoing research efforts, scientific information about earthquake effects on earth dams is increasing. Numerical and physical modeling techniques are being updated to improve the understanding of how an earth dam reacts to seismic events. Improved analysis methods for evaluating liquefaction potential and loss of soil strength due to earthquake motions, loss of dam freeboard due to soil deformations, and case histories of dam performance in earthquakes are emerging.

For existing earth dams, the engineering challenge is to apply the emerging scien-

tific database to each dam for the purpose of determining if the dam is adequately designed and built to safely withstand anticipated seismic events. In addition, selecting the most beneficial and economical engineered remediation option for rehabilitating an existing dam remains a challenge. Engineers and scientists at the U.S. Army Engineer Waterways Experiment Station (WES) Geotechnical Laboratory are expanding the knowledge database for seismic research in soil properties, numerical analysis technique refinements, and dam remediation analyses.

With the recent addition of the U.S. Army centrifuge at WES, new techniques will be explored for physically modeling earth dam response to seismic events and for physically modeling remediation options. Physical model-

ing for seismic remediation helps determine the quickest, most efficient, and most cost effective method to rehabilitate an unsafe dam.

For further information on earthquake research topics, contact the following:

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Upcoming Geotechnical Events

Third International Symposium on Environmental Geotechnology, San Diego, CA, June 10-12, 1996. For more information: Dr. H. Y. Fang, Symposium Chairman, Dept. of Civil and Environmental Engineering, Lehigh University, 13 E. Packer Ave., Bethlehem, PA 18015-3176. Tel: (610) 758-3549, Fax: (610) 758-4522

Fifth International Conference on the Application of Stress-Wave Theory to Piles, Orlando, FL, September 11-13, 1996. For more information: GRL and Associates, 8008 South Orange Ave., Orlando, FL 32809

Geotechnical Engineering for the Preservation of Monuments and Historic Sites, Naples, Italy, October 1996. For more information: TC19 - Preservation of Historic Sites, c/o C.I.Be.C, Via Diocleziano 328, 80124 Napoli, Italy. Fax: ++39/81/7682938

1996 Deep Foundations Annual Conference and Meeting, San Francisco, CA, October 2-4 1996. For more information: Richard Short, c/o Harza Consulting, 425 Roland Way, Oakland, CA 94621. Tel: (510) 568-4001, Fax: (510) 568-2205

Seismic and Environmental Aspects of Dams Design - Earth, Concrete and Tailings Dams, Santiago, Chile, October 16-18, 1996. For more information: Symposium Organizing Committee, CHILECOLD, Mr. Jorge Troncoso, Casilla 306, Correo 22, Santiago, Chile Fax: (562) 552-4054, E-mail troncoso@ing.puc.cl

First International Symposium of Earthquake Resistant Engineering Structures, Thessaloniki, Greece, October 30-November 1, 1996. For more information: Sue Owen, ERES 1996 Conference Secretariat, Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southampton SO40 7AA, UK. Tel: (44) (1703) 293-223, Fax: (44) (1703) 292 853, E-mail wit@wessex.witemi.as.uk

Second International Congress of Environmental Geotechnics, Osaka, Japan, November 5-8, 1996. For more information: Dr. M. Kamon, Geomechanics Prevention Research Institute, Kyoto University, Gokasho, Uji, Kyoto 611 Japan, Tel: ++ 81-774-33-3521, Fax: ++ 81-774-32-4115

Recent Journal Publications, Geotechnical Laboratory Authors

Marcuson, W. F. III, Hadala, R. F., and Ledbetter, R. H., "Seismic Rehabilitation of Earth Dams," *ASCE Journal of Geotechnical Engineering*, Vol 122, No. 1, January 1996.

Chouinard, L. E., Andersen, G. R., and Torrey, V. H. III, "Ranking Models Used for Condition Assessment for Civil Infrastructure Systems," *Journal of Infrastructure Systems*, Vol 2, No. 1, March 1996.

Valanis, K. C., and Peters, J. F., "Ill-Posedness of Initial and Boundary Value Problems in Non-Associative Plasticity," *ACTA MECHANICA*, Vol 114, Winter 1996.

Staheli, K., and Hermanson, G., "Microtunneling: When, Where, and How To Use It," *Water Environment and Technology*, Vol 8, No. 3, March 1996.

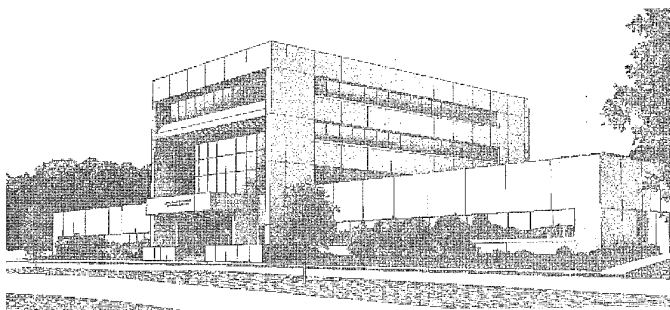
Recent Geotechnical Laboratory Publications

<u>Report No.</u>	<u>Title</u>
TR GL-95-20	Geomorphic Evaluation of the Oak Bend Revetment Site, Mississippi
TR GL-96-1	Influence of Aggregate Gradation and Particle Shape/Texture on Permanent Deformation of Hot Mix Asphalt Pavements
TR GL-96-2	Geophysical Investigation at Solid Waste Management Units at Naval Surface Warfare Center, Crane Division, Crane, Indiana
TR GL-96-3	Mobility Evaluation of the Advanced Technology Demonstrator II 5-Ton Truck Equipped with Anti-Lock Brake and Automatic Traction Control Systems
TR GL-96-4	Rheological Analysis of Silicone Pavement Joint Sealants
TR GL-96-5	High Resolution Terrain Study
MP GL-96-1	In Situ Geophysical Investigation at Proposed Chemical Demilitarization Facility, Lexington Bluegrass Army Depot, Lexington, KY
MP GL-96-2	Airfield Pavement Evaluation, Giebelstadt Army Airfield, Germany
MP GL-96-3	Multidisciplinary Landscape Analysis to Support CERCLA/SARA Activities at Tobyhanna Army Depot, Pennsylvania
MP GL-96-4	Geophysical Investigation of Cluster 11, Edgewood Area, Aberdeen Proving Ground, MD
MP GL-95-5	Investigation of the 26th St. Disposal Site, Edgewood Area, Aberdeen Proving Ground, MD
MP GL-96-5	Side Scan Sonar Survey of the Mississippi, Atchafalaya, and Red Rivers Near Old River Control Complex, Louisiana
MP GL-96-6	Reassessment of Liquefaction Potential and Estimation of Earthquake-Induced Settlements at Paducah Gaseous Diffusion Plant, Paducah, Kentucky
MP GL-96-7	User's Guide: Resin Modified Pavement

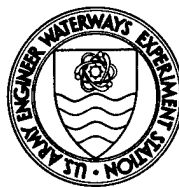
The reports listed above may be ordered from National Technical Information Service (NTIS), U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161; telephone (703) 487-4650. NTIS numbers have not yet been assigned. Very limited number of copies are available at WES. Call the SMIAC (601) 634-3376 for current ordering information. For publications access via the Internet, more information may be obtained from the URL <http://libweb.wes.army.mil/index.htm>.

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